

Missouri 2006 Mathematics

GRADE 3 - SHORT DESCRIPTORS

Below Basic—450-567

Students use multiplication to model situations; recognize that addition and subtraction are inverse operations; add 2-digit numbers; apply subtraction skills; extend shapes or numbers in a pattern; use number sentences to model situations; use transformations to check congruency of shapes; recognize a line of symmetry; use an appropriate unit on a ruler to measure length; estimate length; interpret information from graphs.

Basic—568-627

Students estimate with less-than and greater-than; sort items by size; apply regrouping for adding and subtracting 3-digit numbers; order 3-digit whole numbers; count using numbers and pictures; identify and explain a pattern; use an appropriate unit of measurement; read thermometers; read analog clocks to nearest 5 minutes; use a ruler to measure to the nearest centimeter; compare data; transfer data to graphs.

Proficient—628-666

Students identify odd/even numbers; locate landmark numbers; describe change using increase/decrease; perform basic division of 2-digit whole numbers; identify and locate fractional parts; set up/solve simple word problems; recognize 2-D and 3-D shapes; combine 3-D solids; identify 2-D faces of 3-D objects; determine perimeter of polygons; identify appropriate units of measure; add monetary values up to \$5.00; use calendars to determine dates; estimate length with fractions.

Advanced—667-780

Students estimate and justify results of addition/subtraction of numbers; represent a mathematical situation as a number sentence or an expression; identify multiple lines of symmetry; determine change from \$5.00 including different combinations of coins; predict events as likely or unlikely.

Missouri 2006 Mathematics

GRADE 4 – SHORT DESCRIPTORS

Below Basic—465-595

Students write and compare decimals to the hundredths place; identify fraction as a part of a whole; describe the results of combining shapes; identify parallel lines; estimate linear measurements; read and compare data on a bar graph; complete tables; create tables or graphs to represent data.

Basic—596-650

Students use multiplication to solve problems; analyze patterns using words, tables, and graphs; identify the missing value in a number sentence; identify 2-D and 3-D shapes and attributes; identify the results of transformations; tell time to the nearest minute; use benchmarks to estimate linear measurements; transfer numerical data to a graph; propose and justify conclusions that are based on data.

Proficient—651-687

Students compare parts of a whole as fractions; identify place value up to 6-digit whole numbers; decompose/compose whole numbers; represent multiplication using sets/arrays; divide 3-digit by 1-digit numbers; write a number sentence; describe movement on grid using geometric vocabulary; identify lines of symmetry; use standard/metric units to measure; add/subtract money values to \$10.00; determine area on grid; read/interpret data on a line plot; analyze and explain data.

Advanced—688-805

Students describe constant rates of change; identify strategies to solve problems; describe numeric and geometric patterns; solve problems using graphs, tables, or number sentences; construct a figure with one line of symmetry; determine differences in measures; estimate measurement of angles; determine change from \$10.00; identify equivalent linear measures within a system; count combinations of items.

Missouri 2006 Mathematics

GRADE 5 - SHORT DESCRIPTORS

Below Basic—480-604

Students recognize equivalent representations of numbers by composing and decomposing numbers up to 5 digits; order decimals to thousandths place; interpret place value to hundred-thousands; determine operations used in numeric patterns; use symmetry to complete figures; make generalizations about geometric patterns; describe attributes of 2-D shapes; identify data on a line graph; make and justify predictions using data; describe, compare, and organize data in a bar graph.

Basic—605-667

Students identify place value to the millions place; read, write, and compare unit fractions and decimals to the thousandths place; identify lines of symmetry; identify appropriate units of area; identify appropriate units of measure; use data to create a bar graph and perform calculations using numbers between given intervals.

Proficient—668-705

Students multiply decimals to the hundredths place; use estimation in computations; divide 3-digit by 2-digit numbers; add fractions with like denominators; solve problems involving rates of change; extend numeric patterns; complete number sentences; identify faces of 3-D and similar figures; interpret direction on a coordinate grid; calculate area using a grid; compute elapsed time in hours; analyze data in line graphs and tables; explain the probability of a simple event.

Advanced—706-830

Students use addition/subtraction of money in a real-world situation; explain and justify the results of calculations; justify and model the results of calculations involving constant rates; use number sentences to model a mathematical situation; analyze characteristics of and identify 3-D figures, quadrilaterals, and angle measures; use a coordinate grid to describe paths and determine distances between points; convert between standard units of measurement.

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GRADE 6 – SHORT DESCRIPTORS

Below Basic—495-627

Students compare and order integers, positive rational numbers, and percents; describe patterns in tables and pictures; identify properties of 2-D and 3-D shapes; identify acute, obtuse, or right angles; identify transformations of 2-D shapes; identify equivalent algebraic expressions using the associative property; read and interpret line and circle graphs.

Basic—628-680

Students generate equivalent forms of percents, fractions and decimals; determine a rule for a geometric or numeric pattern; use coordinate geometry to construct and identify 2-D shapes using ordered pairs; use models to compare and explain probabilities; estimate and interpret data in graphs.

Proficient—681-720

Students add/subtract positive rational numbers; identify least common multiple and greatest common factor; estimate quotients; determine rate of increase; analyze rates of change; use variables; compare spatial views of 3-D objects; construct polygons; describe transformations; determine area of rectangles; measure angles; convert within a system of measure; interpret and complete a table based on probability; compare/explain data; calculate measures of center.

Advanced—721-845

Students estimate and convert measurements; describe solutions to algebraic equations; recognize similarities between 2-D shapes; use properties of basic figures to draw conclusions about angle size; determine area of triangles; solve elapsed time problems; apply formula for perimeter; estimate area of a figure using a coordinate grid; interpret stem-and-leaf plots; determine appropriate data collection methods and questions; interpret data to solve problems.

Missouri 2006 Mathematics

GRADE 7 - SHORT DESCRIPTORS

Below Basic—510-639

Students place integers on a number line; identify shapes from a group of 2-D shapes based on a common property; transform 2-D shapes; analyze precision and accuracy using measurement tools; identify unit of measure for volume; interpret bar graphs; use representations of data from bar graphs, circle graphs, stem-and-leaf plots, and box-and-whisker plots; predict outcomes using probability.

Basic –640-684

Students multiply and divide positive rational numbers; identify bases and exponents of numbers in exponential form; recognize equivalent numerical representations; solve 2-step problems; use variables to solve inequalities and equations; analyze patterns represented numerically or graphically; read and interpret graphs.

Proficient—685-723

Students read/write numbers up to hundred-millions place; compare integers, rational numbers, percents; perform operations with mixed numbers; use circle graphs to recognize relationship of parts to whole; solve fraction/decimal/percent problems; solve proportion/scale problems; use models to solve problems; model with equations; describe and classify 2-D/3-D shapes; apply spatial reasoning to estimate area; solve time problems; solve area problems; calculate measures of center.

Advanced—724-860

Students calculate totals involving percents in multi-step problems; extend non-linear patterns; model with inequalities; apply the relationship of corresponding and similar angles; use scale factors on a grid to dilate shapes; describe corresponding angles and sides of similar polygons; solve problems using time conversions; find circumference and area of circles; make conversions using proportions.

Missouri 2006 Mathematics

GRADE 8 – SHORT DESCRIPTORS

Below Basic—525-669

Students generalize numeric patterns; generalize relationships between attributes of 2-D shapes; identify the results of subdividing 3-D shapes; identify 3-D figures using a 2-D representation; solve problems involving area; use scales to estimate distance; interpret graphs; find the mean value of a data set; select graphical representations of data; interpret data; make conjectures based on theoretical probability.

Basic—670-709

Students perform operations with rational numbers; solve and interpret one-step linear equations; extend geometric patterns; generalize patterns to find a specific term; identify relationships in 3-D objects; calculate the theoretical probability of an event; interpret a scatter plot to determine the relationship between two variables.

Proficient—710-740

Students identify equivalent representations of a number; identify mental strategies to solve problems; solve multi-step equations; use symbolic algebra; identify transformations; classify angles; create similar polygons; use coordinate geometry; solve problems involving area; identify appropriate units of measure; convert standard units within a system of measurement; interpret graphic organizers; calculate measures of center.

Advanced—741-885

Students estimate the value of square roots; write numbers using scientific notation; solve two-step inequalities; analyze slope and intercept in linear equations; apply the Pythagorean Theorem using coordinate geometry; identify polygons based on their attributes; identify coordinates of vertices of a transformed polygon; use a protractor to measure angles; solve problems involving surface area; select, create, and use appropriate graphical representation of data.

Missouri 2006 Mathematics

GRADE 10 - SHORT DESCRIPTORS

Below Basic—555-694

Students use rules of exponents to create equivalent numbers; extend and generalize numerical patterns; use visual models to represent 3-D figures; use constructions to represent reflections; determine volume of geometric figures; use diagrams to estimate measurements; predict outcomes using probability.

Basic—695-737

Students compute numbers mentally; determine an equation that represents a quantitative relationship; use algebraic relationships to solve problems; solve for angles of parallel lines cut by a transversal; identify characteristics of surveys and sample groups; calculate central tendencies; use graphical representation of data.

Proficient—738-784

Students justify estimates; solve problems using coordinate planes; solve quadratics; evaluate algebraic expressions; identify an appropriate mathematical model based on data; identify equivalent algebraic expressions; solve area problems; analyze precision of computations; use unit analysis to solve problems; use proportions to solve conversion and rate problems; apply statistical concepts; describe shape of distribution of data.

Advanced—785-910

Students apply formulas to solve problems on a coordinate plane; use rules of exponents to simplify expressions; determine the equation of a straight line on the coordinate plane; compare linear properties of functions; compare area of similar polygons; determine compound probability; evaluate accuracy of a graph.